WHAT IS CLAIMED IS:

1. A network for forming a VPN on a shared network and communicating via the VPN, comprising:

a core network of the VPN formed by a label switching network;

access networks formed by VLANs to access said core network; and

interface devices provided at edges of the label switching network for interfacing said label switching network and the VLANs.

2. The network according to claim 1, wherein said interface devices are edge routers provided at edges of an MPLS network serving as said label switching network, said edge routers including:

a transmit-side edge router for converting a packet, which is sent from a VLAN, to an MPLS packet and transmitting the packet to the MPLS network; and

a receive-side edge router for converting the MPLS packet, which has been received from the MPLS network, to a VLAN packet and directing the VLAN packet to a VLAN that belongs to the same VPN as that of a VLAN on the transmit side.

3. The network according to claim 1, wherein each of said edge routers has a first table storing correspondence between VLAN identifiers (VIDs) contained in VLAN packets and VPN labels contained in MPLS packets;

said transmit-side edge router finds a VPN label,

which corresponds to a VLAN identifier (VID) of a VLAN packet, from said first table, generates an MPLS packet having this VPN label and sends this MPLS packet to the MPLS network; and

said receive-side edge router finds a VID, which corresponds to a VPN label contained in an MPLS packet received from the MPLS network, from said first table, generates a VLAN packet having this VID and sends this VLAN packet to a VLAN indicated by this VID.

4. The network according to claim 3, wherein each of said edge routers includes:

a route decision unit for deciding a route which directs an MPLS packet to a receive-side edge router; and

a second table for storing forwarding labels, which specify routes decided by said route decision unit, mapped to addresses of receive-side edge routers;

said transmit-side edge router finds a receive-side edge router corresponding to a destination of a packet, finds a forwarding label, which corresponds to the receive-side edge router, from said second table, generates an MPLS packet that contains the VPN label and the forwarding label and sends this MPLS packet to the MPLS network.

5. The network according to claim 4, wherein an edge router which constructs the VPN and is connected to a VLAN sends another edge router an address set composed of an address of a VLAN-compatible device connected to

the first-mentioned edge router and the address of this edge router, and each edge router creates a routing table based upon the received information; and

said transmit-side edge router finds a receive-side edge router, which corresponds to the destination of the packet, from said routing table.

6. The network according to claim 5, wherein an edge router transmits no address information to an edge router to which is connected a VLAN that has been prohibited from communicating.

7. The network according to claim 3, wherein said transmit-side edge router discards a VLAN packet having a VID value that is greater than a set value.

8. The network according to claim 2, wherein said transmit-side edge router inserts user priority information, which is contained in a tag of a VLAN packet, into a label of an MPLS packet as IP precedence information of the MPLS network, and said receive-side edge router inserts IP precedence information, which is contained in the label of an MPLS packet, into the tag of a VLAN packet as user priority information of the VPLAN.

9. An edge router in a network for forming a VPN on a shared network, forming a core network of the VPN by an MPLS network and forming an access network, which is for accessing the core network, by a VLAN, wherein a transmit-side edge router comprises:

means for storing a corresponding relationship

between VLAN identifiers (VIDs) and VPN labels serving as VPN identifiers; and

an MPLS packet generating unit for finding a VPN label corresponding to a VID, which is contained in a packet sent from the VLAN, using the corresponding relationship, generating an MPLS packet that includes this VPN label and sending this MPLS packet to the MPLS network.

10. The edge router according to claim 9, further comprising:

a route decision unit for deciding a route which directs an MPLS packet to a receiver-side edge router; and

a forwarding label storage unit for storing forwarding labels, which specify routes decided by said route decision unit, mapped to addresses of receive-side edge routers;

wherein said MPLS packet generating unit finds a receive-side edge router corresponding to a destination of a packet, finds a forwarding label, which corresponds to the receive-side edge router, from said forwarding label storage unit, and generates an MPLS packet that contains the VPN label and the forwarding label.

11. The edge router according to claim 10, wherein said MPLS packet generating unit receives from edge routers which are connected to other VLANs constituting said VPN, information comprising a combination of addresses of these edge routers and addresses of VLAN-compatible

devices connected to these edge routers, creates a routing table based upon said received information and finds said receive-side edge router, which corresponds to the destination of the packet, from said routing table.

12. An edge router in a network for forming a VPN on a shared network, forming a core network of the VPN by an MPLS network and forming an access network, which is for accessing the core network, by a VLAN, wherein a receive-side edge router comprises:

a table for storing correspondence between VLAN identifiers (VIDs) and VPN labels serving as VPN identifiers; and

a VLAN packet generating unit for finding a VID corresponding to a VPN label, which is contained in a packet that enters from the MPLS network, using said table, generating a VLAN packet that includes this VID, and sending this VLAN packet to a VLAN.

13. An edge router in a network for forming a VPN on a shared network, forming a core network of the VPN by an MPLS network and forming an access network, which is for accessing the core network, by a VLAN, comprising:

a table for storing correspondence between VLAN identifiers (VIDs) and VPN labels serving as VPN identifiers;

an MPLS packet generating unit for finding a VPN label corresponding to a VID, which is contained in a packet that enters from the VLAN, using said table,